Tactical Combat Casualty Care

November 2010

Tactical Evacuation Care

OBJECTIVES

- **DESCRIBE** the differences between MEDEVAC and CASEVAC
- **DESCRIBE** the four evacuation categories
- **DESCRIBE** the differences between Tactical Field Care and Tactical Evacuation Care
- **LIST** the nine items in a MEDEVAC

OBJECTIVES

- **DESCRIBE** the additional assets that may be available for airway management, electronic monitoring, and fluid resuscitation

- **LIST** the indications and administrative controls applicable to giving Packed Red Blood Cells (PRBCs) in the field

OBJECTIVES

- **STATE** the rules of thumb for calling for Tactical Evacuation and the importance of careful calculation of the risk/benefit ratio prior to initiating the call

Tactical Evacuation

- Casualties will need to be evacuated as soon as feasible after significant injuries.
- Evacuation asset may be a ground vehicle, aircraft, or boat.
- **Evacuation time is highly variable – evacuations in Afghanistan typically take much longer than those in Iraq.**
- Tactical situation and hostile threat to evacuation platforms may differ markedly from one casualty scenario to another.
- The Tactical Evacuation phase allows for additional medical personnel and equipment to be used.

Evacuation Terminology

- **MEDEVAC**: dedicated special medical evacuation assets marked with a Red Cross – MEDEVAC platforms are non-combatant assets
- **CASEVAC**: non-medical casualty evacuation platforms – may carry a Quick-Reaction force and provide close air support as well
- **Tactical Evacuation (TACEVAC)** – this term encompasses both of the above types of evacuation

Aircraft Evacuation Planning

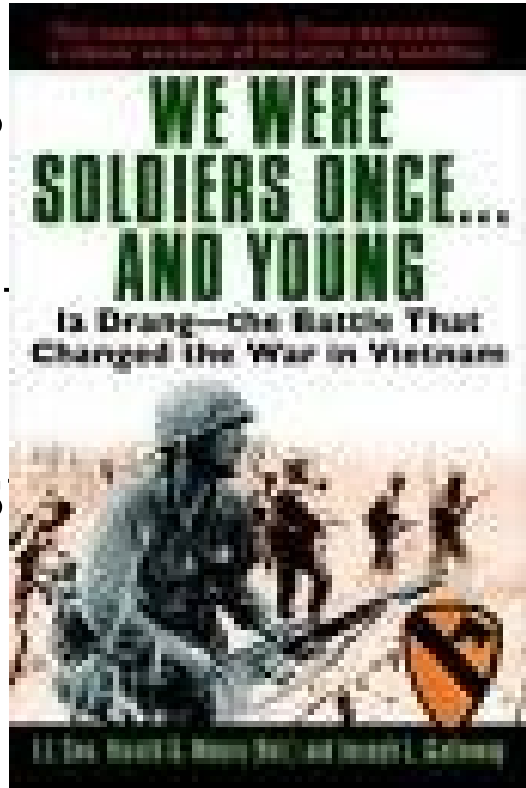
- Flying rules are very different for different aircraft and units
- Consider:
  - Distances and altitudes involved
  - Day versus night
  - Passenger capac
  - Hostile threat
  - Medical equipm
  - Medical personn
  - Icing conditions

Aircraft Evacuation Planning

- **Ensure that your evacuation plan includes aircraft capable to fly the missions you need**
- **Pri**
  opt

CASEVAC vs. MEDEVAC: The Battle of the Ia Drang Valley

- 1st Bn, 7th Cavalry in Vietnam
- Surrounded by 2000 NVA - heavy casualties
- Called for MEDEVAC
- Request refused because LZ was not secure
- Eventual pickup by 229th Assaul Helo Squadron after long delay
- Soldiers died because of this mis
- Must get this part right



Ground Vehicle Evacuation

- More prevalent in urban-centric operations in Iraq than austere environment ops in Afghanistan
- May also be organic to unit or designated MEDEVAC

Tactical Evacuation Care

- TCCC guidelines for care are largely the same in TACEVAC as for Tactical Field Care.
- There are some changes that reflect the additional medical equipment and personnel that may be present in the TEC setting.
- This sectio on those differences

Airway in TACEVAC

- Additional Options for Airway Management
  - Laryngeal Mask Airway
  - CombiTube
  - Endotracheal Intubation (ETT)
- Confirm ETT placement with CO2 monitoring
- These airways are advanced skills not taught in basic TCCC course

Breathing in TACEVAC

- Watch for tension pneumothorax as casualties with a chest wound ascend to the lower pressure at altitude.
- Pulse ox readings will become lower as casualty ascends unless supplemental oxygen is added.
- Chest tube placement may be considered if a casualty with suspected tension pneumo fails to respond to needle decompression

Supplemental Oxygen in Tactical Evacuation Care

Most casualties do not need supplemental oxygen, but have oxygen available and use fo

- Casualties in shock
- Low oxygen sat on pulse o
- Unconscious casualties
- Casualties with TBI (maintain oxygen satura > 90%)
- Chest wound casualties

Fluid Resuscitation in TACEVAC

5. Fluid Resuscitation

Reassess for hemorrhagic shock (altered mental status in the absence of brain injury and/or change in pulse character). **If BP monitoring is available, maintain target systolic BP 80-90 mmHg.**

a. If not in shock:

- No IV fluids necessary.
- PO fluids permissible if conscious and can swallow.

b. **If in shock and blood products <u>are not</u> available:**

- Hextend 500-mL IV bolus
- Repeat after 30 minutes if still in shock.
- **Continue resuscitation with Hextend or crystalloid solution as needed to maintain target BP or clinical improvement.**

Fluid Resuscitation in TACEVAC

5. Fluid Resuscitation

c. If in shock and blood products <u>are</u> available under an approved command or theater protocol:

- Resuscitate with 2 units of plasma followed by packed red blood cells (PRBCs) in a 1:1 ratio. If blood component therapy is not available, transfuse fresh whole blood. Continue resuscitation as needed to maintain target BP or clinical improvement.

d. If a casualty with an altered mental status due to suspected TBI has a weak or absent peripheral pulse, resuscitate as necessary to maintain a palpable radial pulse. If BP monitoring is available, maintain target systolic BP of at least 90 mmHg.

Blood Product Administration

1) The success of blood product administration in improving the survival of trauma patients is unquestioned, and blood products are the standard for **hospital-based** trauma care in both military and civilian settings.

Blood Product Administration

2) The additional benefit gained from starting blood products in the **prehospital** phase has not yet been established in the medical literature, but the Defense Health Board has agreed that this therapy may be beneficial in the prehospital setting if blood products are available.

Blood Product Administration

3) Blood product administration should be initiated if feasible for any casualty who meets protocol criteria ***and is still enroute to the medical treatment facility***. There is no minimum transport time below which blood product therapy should not be initiated if protocol criteria are met. Casualties who have absent radial pulse and/or decreased mental status due to hemorrhagic shock in the prehospital setting have a very high mortality rate and are in need of blood

Blood Transfusion Protocols

- Transfusion of blood products **should <u>not</u> be attempted in the absence of a theater- or command-approved protocol .**
- Blood products should be transfused **only by providers that have been appropriately trained** in the governing protocol.

Damage Control Resuscitation

- Standard of care for severe shock is now "1:1" therapy
  - One unit of plasma for every unit of packed red cells
  - Different from previous focus primarily on packed red cells
  - Plasma helps to control hemorrhage by promoting clotting
  - Has been shown to increase survival

Protocols for FDA-Compliant Blood Products (Component Therapy)

- Issues to address include:
  - Minimum provider level required
  - Training in blood product administration
  - Preparation and transport of blood products
  - Transfusion equipment
  - Which casualties need blood products
  - Verifying correct blood type

Protocols for FDA-Compliant Blood Products (Component Therapy)

- Issues to address include:
  - Which products should be given and how much
  - Transfusion procedures
  - Management of transfusion reactions
  - Documentation of blood product administration

Non - FDA Compliant Blood Products (Fresh Whole Blood (FWB))

- Must be administered IAW Assistant Secretary of Defense for Health Affairs memo of 19 March 2010
- Used only in emergencies when:
  - No FDA-compliant blood products are available
  - Complying with a command-approved protocol
  - Providers trained in the protocol
- Transfusing FWB may save lives when blood components are not available

Protocols for Non-FDA Compliant Blood Products

- Issues to address include:
  - Minimum provider level required
  - Training in FWB administration
  - Transfusion equipment
  - Which casualties need FWB
  - Prescreened donor pool
  - Screening for infectious agents
  - Verifying blood type

Protocols for Non-FDA Compliant Blood Products

- Issues to address include:
  - How much FWB should be given
  - Management of transfusion reactions
  - Documentation of blood product administration
  - Post-transfusion monitoring of donor and recipient

Hypothermia Prevention in TACEVAC

Remember to keep the casualty on an insulated surface or get him/her on one as soon as possible.

Apply the Ready-Heat Blanket from the Hypothermia Prevention and Management Kit (HPMK), to the casualty's torso (directly on the skin) and cover the casualty with the Heat-Reflective Shell (HP

Hypothermia Prevention in TACEVAC

If a HRS is not available, the previously recommended combination of the Blizzard Survival Blanket and the Ready Heat blanket may also be used.

Use a portable fluid warmer capable of warming all IV fluids including blood products.

Remember Prevention of Hypothermia in Helicopters!

in wind and altitude cold result in cold s

tection especially important for casualtie

n shock and burn casualties

TACEVAC CARE - Hoisting

- **<u>Rigid</u> <u>Litters</u> <u>Only</u> When Hoisting!**
- **Check and double-check rigging**


Questions?

Standard Evacuation Categories

- **Urgent/Urgent Surgical:** 2 hour window to save life, limb, or eyesight
- **Priority:** Can be safely managed for 4 hours
- **Routine:** Can be safely managed for 24 hours
- **Convenience:** Can be safely

Tactical Evacuation: Eight Rules of Thumb

TACEVAC 8 Rules of Thumb: Assumptions

- **These Rules of Thumb are designed to help the corpsman or medic determine the true urgency for evacuation.**
- **They assume that the decision is being made at 15-30 minutes after wounding.**
- **Also that care is being rendered per the TCCC guidelines.**
- **Most important when there are tactical constraints on evacuation:**
  - **Interferes with mission**
  - **High risk for team**

TACEVAC Rule of Thumb #1

Soft tissue injuries are common and may look bad, but usually don't kill unless associated with shock

TACEVAC Rule of Thumb #2

Bleeding from most extremity wounds should be controllable with a tourniquet or hemostatic dressing. Evacuation delays should r mortality if bleedi ntrolled.

TACEVAC Rule of Thumb #3

Casualties who are in shock should be evacuated as soon as possible

Gunshot wound to the abdomen

TACEVAC Rule of Thumb #4

Casualties with penetrating wounds of the chest who have respiratory distress unrelieved by needle decompressio should be eva as possible.

TACEVAC Rule of Thumb #5

Casualties with blunt or penetrating trauma of the face associated with airway difficulty should have an immediate airway established and be evacuated as soon as possible.

REMEMBER to let the casual
up and lean forward if that h
him
or her to breathe better!

TACEVAC Rule of Thumb #6

Casualties with blunt or penetrating wounds of the head where there is obvious massive brain damage and unconsciousness are unlikely to survive with or without emergent evacuation.

TACEVAC Rule of Thumb #7

Casualties with blunt or penetrating wounds to the head - where the skull has been penetrated but the casualty is conscious - should be evacuated emergen

TACEVAC Rule of Thumb #8

Casualties with penetrating wounds of the chest or abdomen who are not in shock at their 15-minute evaluation have a moderate risk of developing late shock from slowly bleeding internal injuries. They should be carefully monitored and evacuated as soon as fea

Questions?

9-Line Evacuation Request

uired if you want an evacuation from another u

9-Line Evacuation Request

- Request for resources through tactical aircraft channels.
- NOT a direct medical communication with medical providers
- Significance
  - Determines tactical resource allocation
  - DOES NOT convey much useful medical information

9-line Evacuation Request

Line 1: Pickup location

Line 2: Radio frequency, call sign and suffix

Line 3: Number of casualties by precedence (evacuation category)

Line 4: Special equipment required

9-line Evacuation Request

Line 5: Number of casualties by type (litter, ambulatory)

Line 6: Security at pickup site

Line 7: Method of marking pickup site

9-line Evacuation Request

Line 8: Casualty's nationality and status

Line 9: Terrain Description; NBC contamination if applicable

TACEVAC Care for Wounded Hostile Combatants

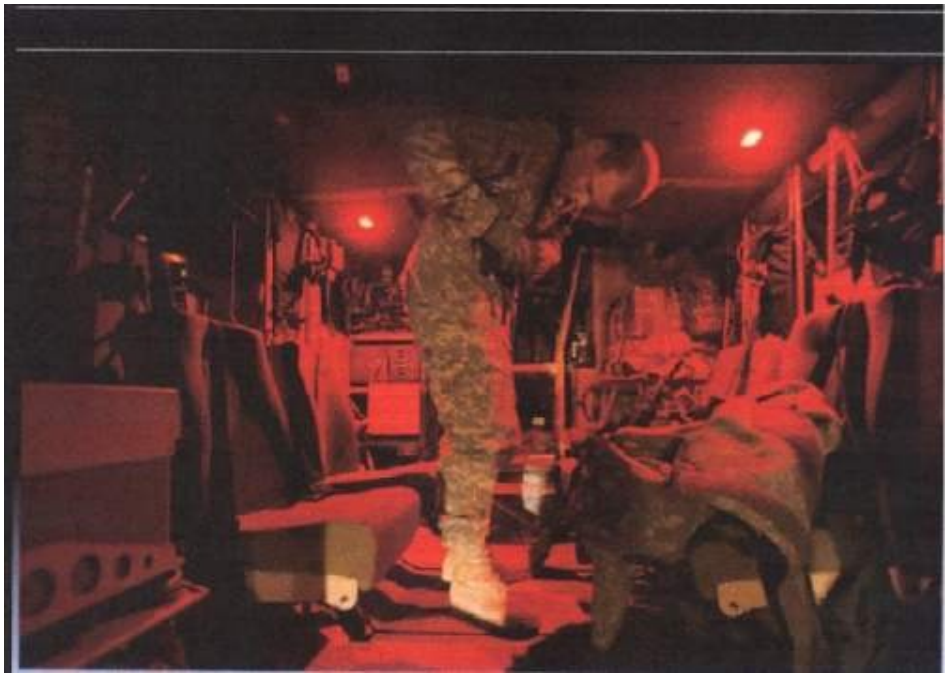
- Principles of care are the same for all wounded combatants
- Rules of Engagement may dictate evacuation process
- Restrain and provide security
- Remember that each hostile casualty represents a potenti threat to the provider and th unit and take appropriate measures
- They still want to kill you.

Tactical Evacuation Care Summary of Key Points

- Evacuation time is highly variable
- Thorough planning is key
- Similar to Tactical Field Care guidelines but some modifications

Tactical Evacuation Care Summary of Key Points

- Tactical Evacuation Rules of Thumb
- Evacuation Categories
- 9-Line Evacuation Request



Convoy IED Scenario

Recap from TFC

Your last medical decisions during TFC enroute to HLZ:

- Placed tourniquet on both bleeding stumps
- Disarmed
- Placed NPA
- Established IV
- Administered 500 ml Hextend®
- IV antibiotics
- Provided hypothermia prevention

Convoy IED Scenario

What is your 9-line?

Line 1: Grid NS 12345678
Line 2: 38.90, Convoy 6
Line 3: 1 Urgent
Line 4: PRBCs, oxygen, advanced airway
Line 5: 1 litter
Line 6: Secure
Line 7: VS-17 (Orange Panel)
Line 8: U.S. Military
Line 9: Flat field

*** Some individuals recommend adding a tenth line: the casualty's vital signs**

Convoy IED Scenario

Next steps?

- Continue to reassess casualty and prep for helo transfer
  - Search casualty for any remaining weapons before boarding helo
  - Secure casualty's personal effects
  - Document casualty status and treatment
- Helicopter arrives. Casualty is transferred to helo
- Medic stays with convoy

Convoy IED Scenario

What's Next?

- Casualty is now conscious but is confused
- Reassess casualty for ABCs
  - NPA still in place
  - First Hextend bolus completed 30 minutes ago
  - Tourniquets in place, no significant bleeding
- Attach electronic monitoring to casualty
  - Heart rate 140; systolic BP 70
  - O2 sat = 90%

Convoy IED Scenario

What's next?

- Supplemental Oxygen
  - Why?
    - Casualty is still in shock

What's next?

- 2nd bolus of Hextend® 500ml
  - Why?
    - Casualty is still in shock

Convoy IED Scenario

What's next?

- Inspect and dress known wounds and search for additional wounds

What's next?

- Try to Remove tourniquets and use hemostatics?
  - No
  - Why? THREE reasons:
    - Short transport time - less than 2 hours from application of tourniquets
    - No distal extremities to lose


Questions/Comments